

LAX100

Graphics Card

User's Manual

A14510051

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Trademarks

All trademarks and registered trademarks of products appearing in this manual are the properties of their respective holders.

FCC and DOC Statement on Class B

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio TV technician for help.

Notice:

1. The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
2. Shielded interface cables must be used in order to comply with the emission limits.

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Warranty

1. Warranty does not cover damages or failures that arised from misuse of the product, inability to use the product, unauthorized replacement or alteration of components and product specifications.
2. The warranty is void if the product has been subjected to physical abuse, improper installation, modification, accidents or unauthorized repair of the product.
3. Unless otherwise instructed in this user's manual, the user may not, under any circumstances, attempt to perform service, adjustments or repairs on the product, whether in or out of warranty. It must be returned to the purchase point, factory or authorized service agency for all such work.
4. We will not be liable for any indirect, special, incidental or consequential damages to the product that has been modified or altered.

Static Electricity Precautions

It is quite easy to inadvertently damage your PC, graphics card, components or devices even before installing them in your system unit. Static electrical discharge can damage computer components without causing any signs of physical damage. You must take extra care in handling them to ensure against electrostatic build-up.

1. To prevent electrostatic build-up, leave the graphics card in its anti-static bag until you are ready to install it.
2. Wear an antistatic wrist strap.
3. Do all preparation work on a static-free surface.
4. Hold the device only by its edges. Be careful not to touch any of the components, contacts or connections.
5. Avoid touching the pins or contacts on all modules and connectors. Hold modules or connectors by their ends.



Important:

Electrostatic discharge (ESD) can damage your processor, disk drive and other components. Perform the upgrade instruction procedures described at an ESD workstation only. If such a station is not available, you can provide some ESD protection by wearing an antistatic wrist strap and attaching it to a metal part of the system chassis. If a wrist strap is unavailable, establish and maintain contact with the system chassis throughout any procedures requiring ESD protection.

Safety Measures

To avoid damage to the system:

- Use the correct AC input voltage range.

To reduce the risk of electric shock:

- Unplug the power cord before removing the system chassis cover for installation or servicing. After installation or servicing, cover the system chassis before plugging the power cord.

Battery:

- Danger of explosion if battery incorrectly replaced.
- Replace only with the same or equivalent type recommend by the manufacturer.
- Dispose of used batteries according to local ordinance.

About the Package

The graphics card package contains the following items. If any of these items are missing or damaged, please contact your dealer or sales representative for assistance.

- One graphics card
- One CD
- One QR (Quick Reference)

The graphics card and accessories in the package may not come similar to the information listed above. This may differ in accordance to the sales region or models in which it was sold. For more information about the standard package in your region, please contact your dealer or sales representative.

Chapter 1 - Introduction

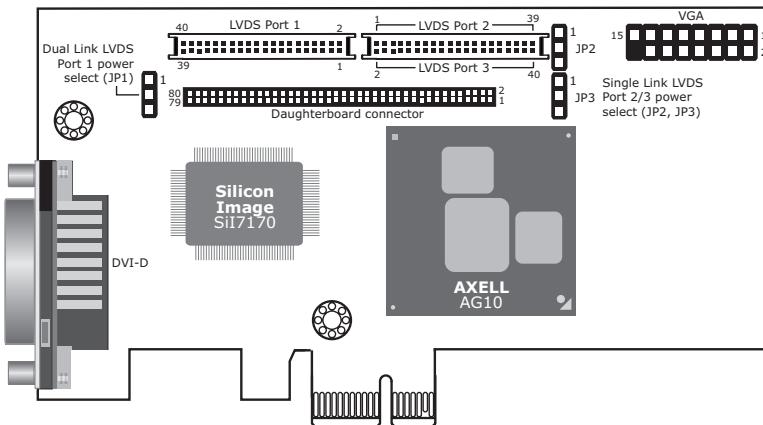
Specifications

Chipset	<ul style="list-style-type: none">AXELL AG10 graphics chip
Memory	<ul style="list-style-type: none">Integrated 512Mbit Video RAM (VRAM) on the graphics chip
PCI Express Interface	<ul style="list-style-type: none">PCI Express x1 interfaceCompliant with PCI Express 1.1
2D Draw Engine	<ul style="list-style-type: none">Low power hardware acceleration 2D engine
Draw Functions	<ul style="list-style-type: none">BLT functionsPrimitive drawing functions (point, line, triangle, rectangle)Triangle texture mappingRectangle and triangle gradation drawingPixel blending (alpha blending, raster operation)Stencil operation
Draw Capability	<ul style="list-style-type: none">Supports 16,777,216 colors
Display Resolutions	<ul style="list-style-type: none">Maximum 1920 x 1200 dots, 60Hz (when a single screen is displayed)<ul style="list-style-type: none">A screen of this resolution can be displayed together with a screen of 640 x 480 dots or smaller (total of two screens)Maximum 1280 x 1024 dots, 60Hz (when three screens are displayed)Maximum 1024 x 768 dots, 60Hz (when four screens are displayed)
Display Features	<ul style="list-style-type: none">Overlay (bilinear scaling, four independent displays)Hardware cursor (8 bit gradation stencil operation, four independent displays)
Video Output Interface	<ul style="list-style-type: none">1 DB-15 analog VGA port1 24-pin digital DVI-D port1 80-pin connector for optional EXT-LAX100 daughterboard<ul style="list-style-type: none">SiI164 HDMI transmitterSiI7170 DVI transmitter2 HDMI ports1 24-pin digital DVI-D portPCB dimensions: 100mm (3.94") x 90mm (3.55")
<p>Note:</p> <p>The board supports either the EXT-LAX100 daughterboard or the LVDS outputs. LVDS is not supported once you have connected the daughterboard.</p>	

Temperature	• 0°C to 60°C
Humidity	• 10% to 90%
PCB Dimensions	• 120mm (4.7") x 69mm (2.7")

Chapter 2 - Hardware Installation

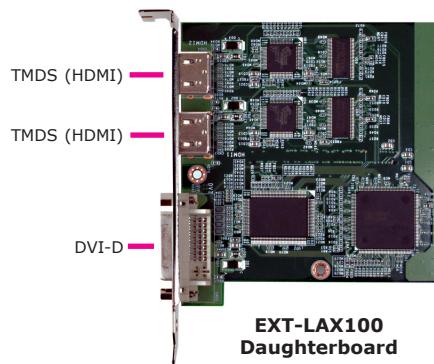
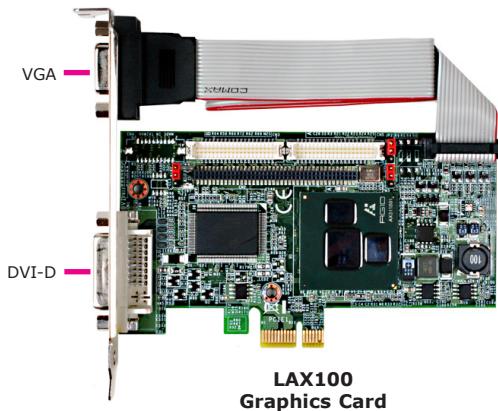
Board Layout



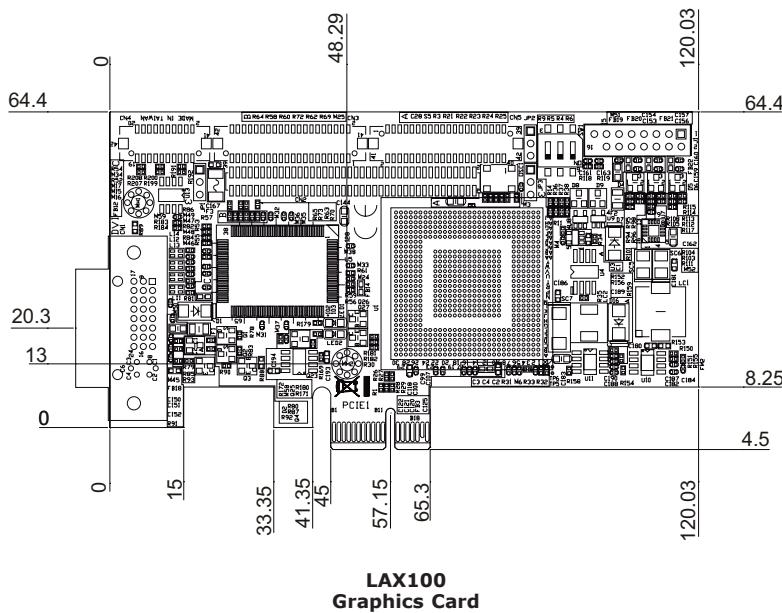
LAX100 Graphics Card

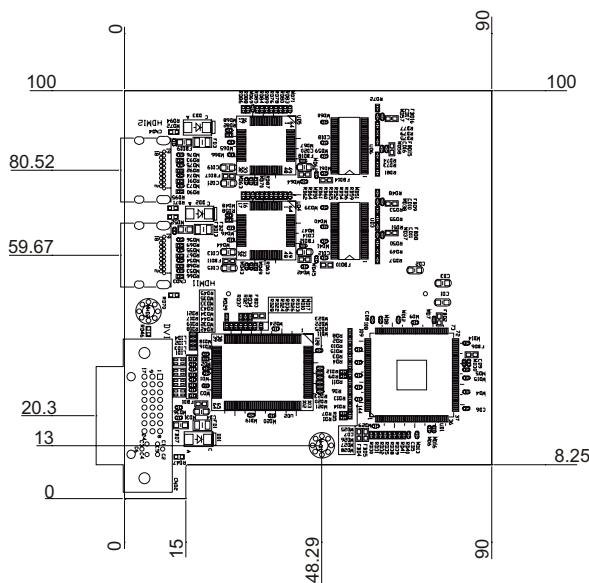
Note:

The LVDS ports and the Daughterboard connector are optional.



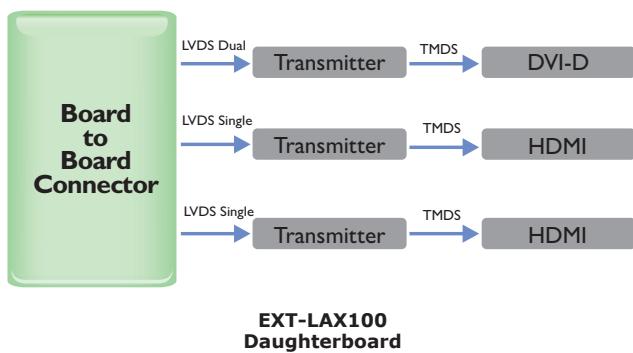
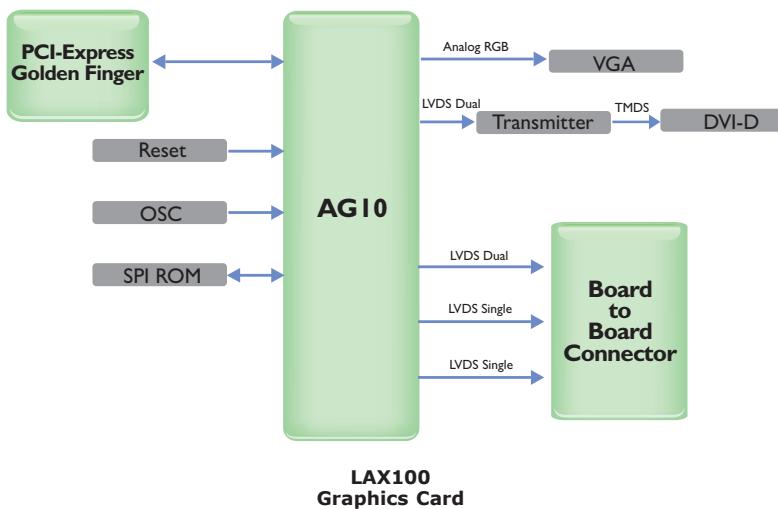
Mechanical Dimensions





**EXT-LAX100
Daughterboard**

Block Diagram



Handling the Graphics Card

It is quite easy to inadvertently damage your graphics card even before installing it in your system unit. Electrostatic discharge can damage computer components without causing any signs of physical damage. You must take extra care in handling the graphics card to ensure that no static build-up is present.

Tips in Handling the Graphics Card

1. To prevent electrostatic build-up, leave the graphics card in its anti-static bag until you are ready to install it.
2. Do all preparation work on a static-free surface with graphics card components facing up.
3. Hold the graphics card by its edges only. Be careful not to touch any of the components, contacts or connections, especially gold contacts, on the board.

Installing the Graphics Card

For most computer systems, you will only need a medium size Phillips screwdriver to remove the cover and a small flat-blade screwdriver to secure the monitor cable.



Important:

Electrostatic discharge (ESD) can damage the graphics card, system board, processor, disk drives, add-in boards, and other components. Perform the upgrade instruction procedures described at an ESD workstation only. If such a station is not available, you can provide some ESD protection by wearing an antistatic wrist strap and attaching it to a metal part of the system chassis. If a wrist strap is unavailable, establish and maintain contact with the system chassis throughout any procedures requiring ESD protection.

Step 1: Power-Off the Computer

Make sure the computer and all other peripheral devices connected to it has been powered down. Disconnect all power cords and cables.

**Important:**

Hazardous voltages are present and exposed when operating the computer with the cover removed. To prevent equipment damage and personal injury, never apply power to the computer when the cover is off.

Step 2: Remove the Computer's Cover

Refer to your computer system manual for specific instructions on removing your computer's system unit cover. In general, you will need to remove several screws on the back or side of the system unit and then slide the cover off.

Step 3: Remove the Slot Cover

Remove the slot-cover screw and slot cover adjacent to the PCI Express slot. Put them in a safe place for later use.

Step 4: Unpack the Graphics Card

Remove the graphics card from the shipping carton and its protective packing. Please do not throw away the packing material or the shipping box. You may use these again to prevent damage should you need to ship the graphics card for repairs.

Step 5: Insert the Graphics Card

Align the graphics card above the PCI Express slot then press it down firmly until it is completely seated in the slot. Make sure the graphics card is straight and level compared to the computer's system board by viewing it from the side.

Step 6: Replace the Slot-Cover Screw

Secure the graphics card with the slot-cover screw you removed in step 3.

Step 7: Replace the Computer's Cover

After you have finished installing the graphics card, put the computer's cover back on the system unit. Refer to the computer's system manual for instructions if necessary.

Step 8: Connect a Monitor or LCD Panel

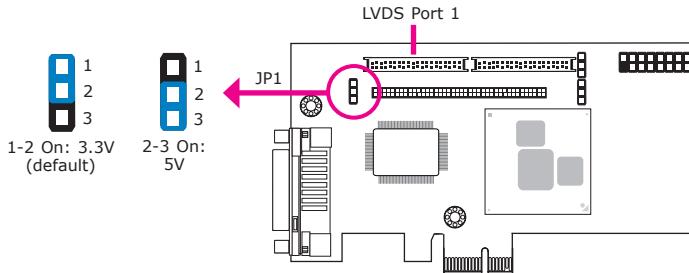
Refer to the "Connecting Display Devices" section for details.

**Important:**

If your computer comes with an onboard graphics capability, you may need to disable the onboard function from the system board's BIOS. However, some manufacturers does not allow the built-in graphics to be disabled or set as secondary display. Refer to the documentation or manual included in the computer's package for more information.

Jumper Settings

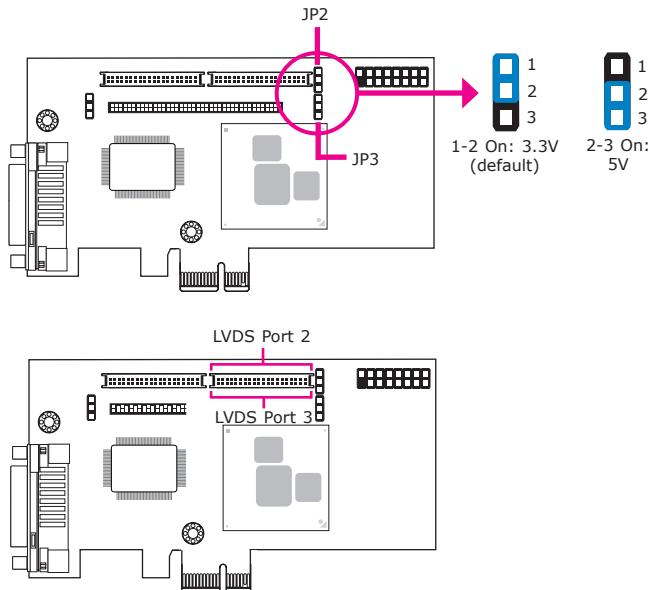
Dual Link LVDS Port 1 Power Select (optional)



JP1 is used to select the power supplied to LVDS Port 1.

LVDS Port 1 supports 24-bit dual channel LVDS display.

Dual Link LVDS Port 2 / Port 3 Power Select (optional)

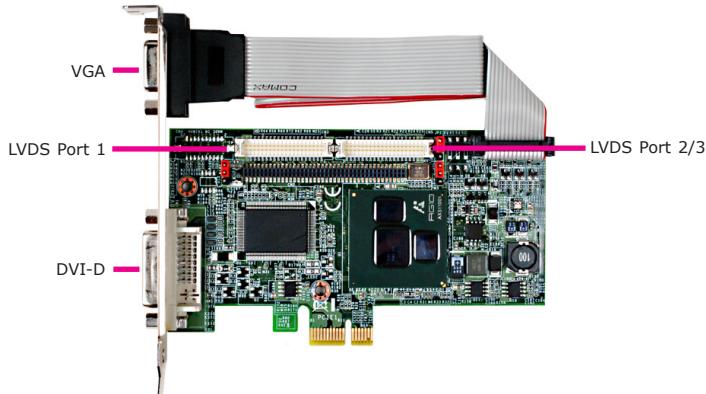


JP2 and JP3 are used to select the power supplied to LVDS Port 2 and LVDS Port 3.

LVDS Port 2 and Port 3 support 24-bit single channel LVDS display.

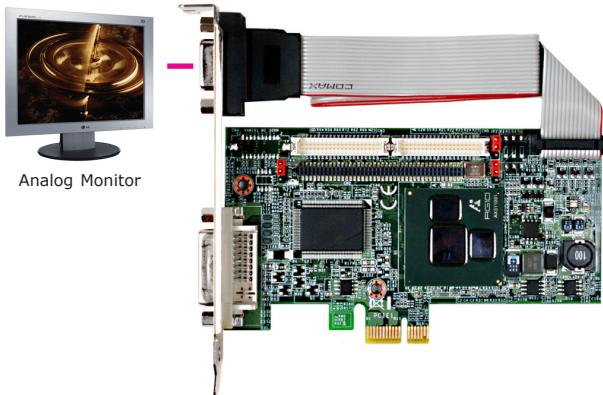
Connecting Display Devices

The graphics card allows multiple displays by means of the VGA port, DVI-D port and the LVDS connectors. Devices connected to these interfaces can be displayed simultaneously.



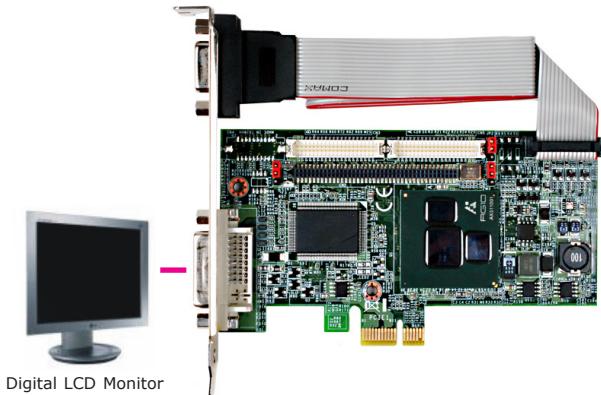
Connecting an Analog Monitor to the VGA Port

Connect the analog monitor's cable connector to the VGA port. After you plug the cable connector into the VGA port, gently tighten the cable screws to hold the connector in place.



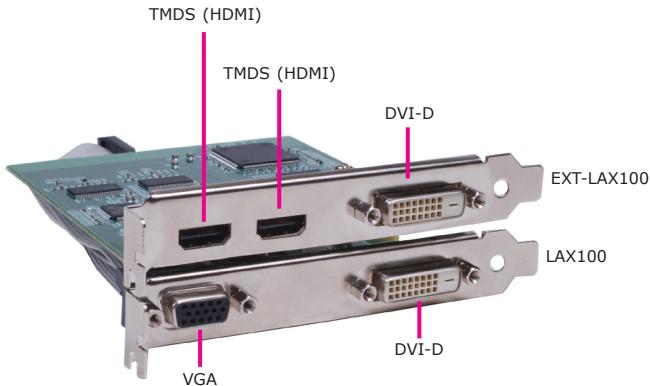
Connecting a Digital LCD Monitor to the DVI-D Port

Connect the digital LCD monitor's cable connector to the DVI-D port. After you plug the cable connector into the DVI-D port, gently tighten the cable screws to hold the connector in place.



Connecting EXT-LAX100 to LAX100

Connect the optional EXT-LAX100 daughterboard to the LAX100 graphics card for a total of 5 display outputs.

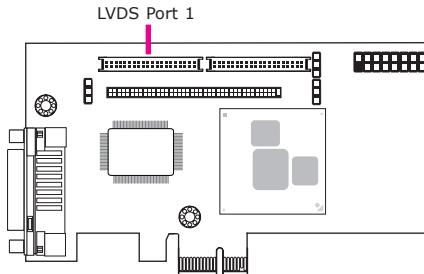


Important:

LAX100 supports either the EXT-LAX100 daughterboard or the LVDS outputs. LVDS is not supported once you have connected the daughterboard.

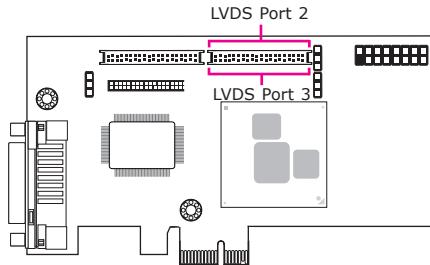
Connector Pin Definition

LVDS Port 1 Connector (optional)



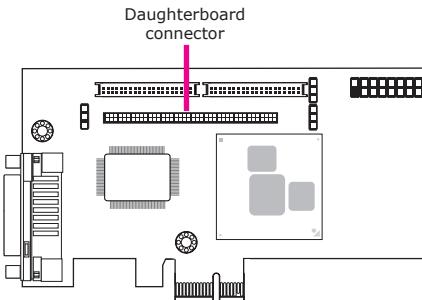
Pins	Function	Pins	Function
1	GND	2	GND
3	LVDS1_Out3+	4	LVDS1_Out7+
5	LVDS1_Out3-	6	LVDS1_Out7-
7	GND	8	GND
9	LVDS1_Out2+	10	LVDS1_Out6+
11	LVDS1_Out2-	12	LVDS1_Out6-
13	GND	14	GND
15	LVDS1_Out1+	16	LVDS1_Out5+
17	LVDS1_Out1-	18	LVDS1_Out5-
19	GND	20	GND
21	LVDS1_Out0+	22	LVDS1_Out4+
23	LVDS1_Out0-	24	LVDS1_Out4-
25	GND	26	GND
27	LVDS1_CLK1+	28	LVDS1_CLK2+
29	LVDS1_CLK1-	30	LVDS1_CLK2-
31	GND	32	GND
33	LVDS1_DDCCLK	34	N. C.
35	LVDS1_DDCDATA	36	N. C.
37	Panel Power(port1)	38	Panel Power(port1)
39	Panel Power(port1)	40	Panel Power(port1)

LVDS Port 2 and LVDS Port 3 Connectors (optional)



LVDS Port 2		LVDS Port 3	
Pins	Function	Pins	Function
1	GND	2	GND
3	LVDS2_Out3+	4	LVDS3_Out3+
5	LVDS2_Out3-	6	LVDS3_Out3-
7	GND	8	GND
9	LVDS2_Out2+	10	LVDS3_Out2+
11	LVDS2_Out2-	12	LVDS3_Out2-
13	GND	14	GND
15	LVDS2_Out1+	16	LVDS3_Out1+
17	LVDS2_Out1-	18	LVDS3_Out1-
19	GND	20	GND
21	LVDS2_Out0+	22	LVDS3_Out0+
23	LVDS2_Out0-	24	LVDS3_Out0-
25	GND	26	GND
27	LVDS2_CLK1+	28	LVDS3_CLK1+
29	LVDS2_CLK1-	30	LVDS3_CLK1-
31	GND	32	GND
33	LVDS2_DDCCLK	34	LVDS3_DDCCLK
35	LVDS2_DDCDATA	36	LVDS3_DDCDATA
37	Panel Power(port2)	38	Panel Power(port3)
39	Panel Power(port2)	40	Panel Power(port3)

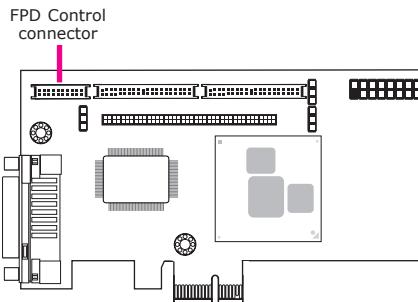
Daughterboard Connector (optional)



Pins	Function	Pins	Function
1	3.3V	2	3.3V
3	3.3V	4	3.3V
5	3.3V	6	3.3V
7	LVDS3_DDCDATA	8	5V
9	LVDS3_DDCCLK	10	5V
11	LVDS2_DDCDATA	12	5V
13	LVDS2_DDCCLK	14	Port3_Hot plug detect
15	LVDS1_DDCDATA	16	Port2_Hot plug detect
17	LVDS1_DDCCLK	18	Port1_Hot plug detect
19	GND	20	GND
21	LVDS3_Out2-	22	LVDS3_Out3-
23	LVDS3_Out2+	24	LVDS3_Out3+
25	GND	26	GND
27	LVDS3_Out0-	28	LVDS3_Out1-
29	LVDS3_Out0+	30	LVDS3_Out1+
31	GND	32	GND
33	LVDS2_Out3-	34	LVDS3_CLK1-
35	LVDS2_Out3+	36	LVDS3_CLK1+
37	GND	38	GND
39	LVDS2_Out1-	40	LVDS2_Out2-
41	LVDS2_Out1+	42	LVDS2_Out2+
43	GND	44	GND
45	LVDS2_CLK1-	46	LVDS2_Out0-

Pins	Function	Pins	Function
47	LVDS2_CLK1+	48	LVDS2_Out0+
49	GND	50	GND
51	LVDS1_Out6-	52	LVDS1_Out7-
53	LVDS1_Out6+	54	LVDS1_Out7+
55	GND	56	GND
57	LVDS1_Out4-	58	LVDS1_Out5-
59	LVDS1_Out4+	60	LVDS1_Out5+
61	GND	62	GND
63	LVDS1_Out3-	64	LVDS1_CLK2-
65	LVDS1_Out3+	66	LVDS1_CLK2+
67	GND	68	GND
69	LVDS1_Out1-	70	LVDS1_Out2-
71	LVDS1_Out1+	72	LVDS1_Out2+
73	GND	74	GND
75	LVDS1_CLK1-	76	LVDS1_Out0-
77	LVDS1_CLK1+	78	LVDS1_Out0+
79	GND	80	GND

FPD Control Connector (optional)



Pins	Signal Name	Function
1	LVDS1_BR	LVDS1 Back Light On/Off (I2C Control)
2	LVDS1_ACTRL1	LVDS1 Analog Control 1 0V to 5.0V Analog Out /ACTRL1 to ACTRL2 Register
3	LVDS1_ACTRL2	LVDS1 Analog Control 2 0V to 5.0V Analog Out / ACTRL1 to ACTRL2 Register
4	LVDS1_ACTRL3	LVDS1 Analog Control 3 0V to 5.0V Analog Out
5	LVDS1_ACTRL4	LVDS1 Analog Control 4 0V to 5.0V Analog Out
6	GND	Ground
7	LVDS2_BR	LVDS2 Back Light On/Off (I2C Control)
8	LVDS2_ACTRL1	LVDS2 Analog Control 1 0V to 5.0V Analog Out /ACTRL1 to ACTRL2 Register
9	LVDS2_ACTRL2	LVDS2 Analog Control 2 0V to 5.0V Analog Out / ACTRL1 to ACTRL2 Register
10	LVDS2_ACTRL3	LVDS2 Analog Control 3 0V to 5.0V Analog Out
11	LVDS2_ACTRL4	LVDS2 Analog Control 4 0V to 5.0V Analog Out
12	GND	Ground
13	LVDS3_BR	LVDS3 Back Light On/Off (I2C Control)
14	LVDS3_ACTRL1	LVDS3 Analog Control 1 0V to 5.0V Analog Out /ACTRL1 to ACTRL2 Register
15	LVDS3_ACTRL2	LVDS3 Analog Control 2 0V to 5.0V Analog Out / ACTRL1 to ACTRL2 Register
16	LVDS3_ACTRL3	LVDS3 Analog Control 3 0V to 5.0V Analog Out
17	LVDS3_ACTRL4	LVDS3 Analog Control 4 0V to 5.0V Analog Out
18	GND	Ground
19	3.3V	+3.3V Power
20	5V	+5.0V Power

Chapter 3 - Supported Software

The CD that came with the graphics card contains drivers, utilities and software applications required to enhance the performance of the graphics card.

Insert the CD into a CD-ROM drive. The autorun screen (Graphics Card Utility CD) will appear. If after inserting the CD, "Autorun" did not automatically start (which is, the Graphics Card Utility CD screen did not appear), please go directly to the root directory of the CD and double-click "Setup".

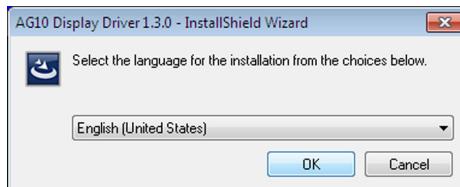


AXELL Graphics Drivers

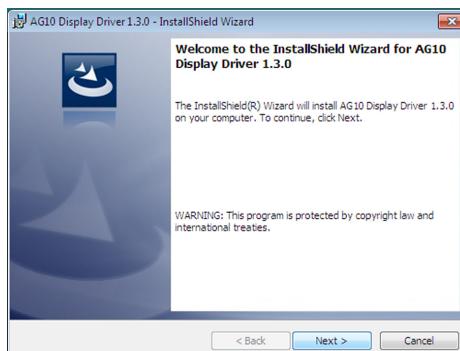
Windows 7 / Windows Vista

To install the driver, click "AXELL Graphics Drivers" on the main menu.

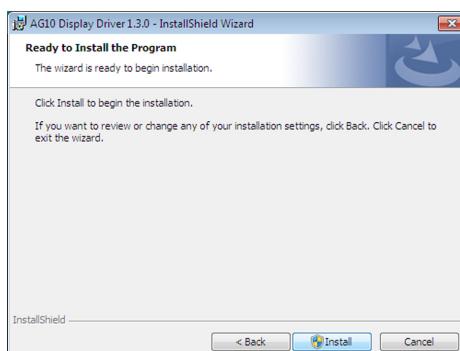
1. Select the language to use for the installation and then click OK.



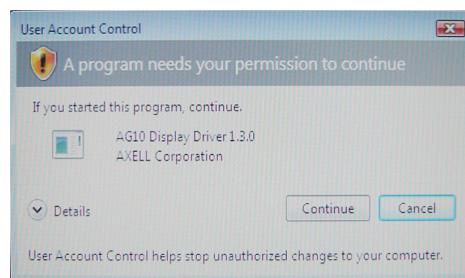
2. The installation program is ready to install the graphics driver. Click Next.



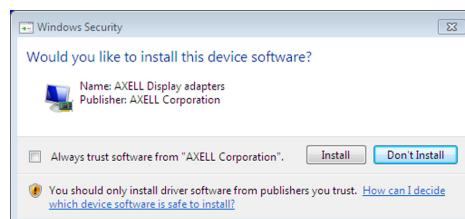
3. Click Install to begin the installation.



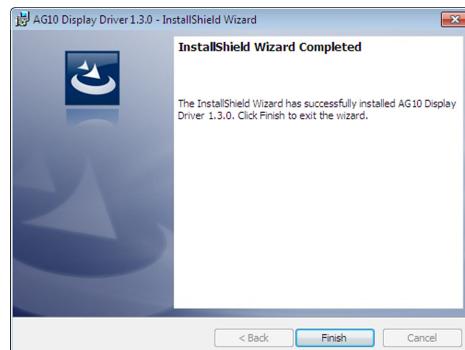
4. Click Continue.



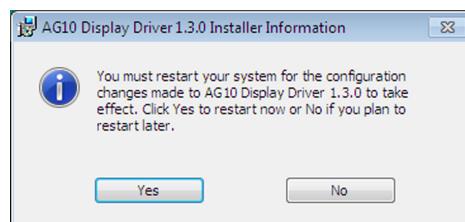
5. Click Install.



6. You have successfully installed the driver. Click Finish.



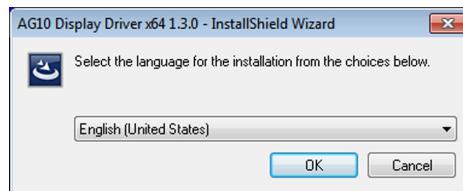
7. Restart the system for the configuration changes to take effect. Click Yes to restart or No to restart later.



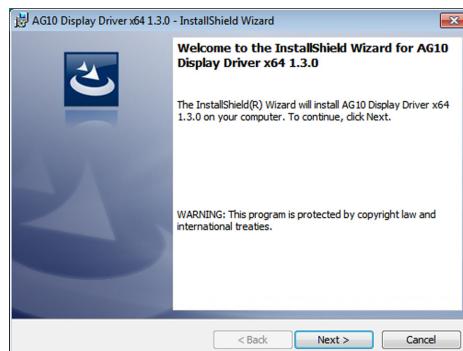
Windows 7 / Windows Vista x64

To install the driver, click "AXELL Graphics Drivers" on the main menu.

1. Select the language to use for the installation and then click OK.



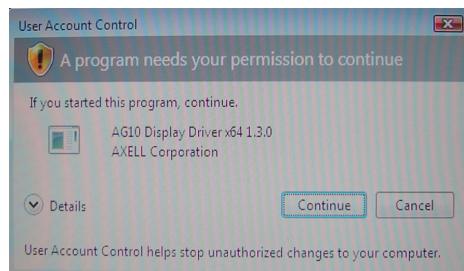
2. The installation program is ready to install the graphics driver. Click Next.



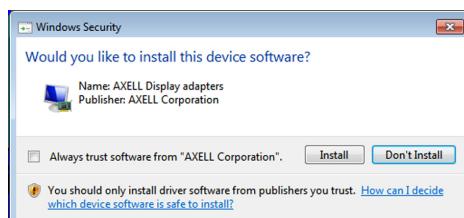
3. Click Install to begin the installation.



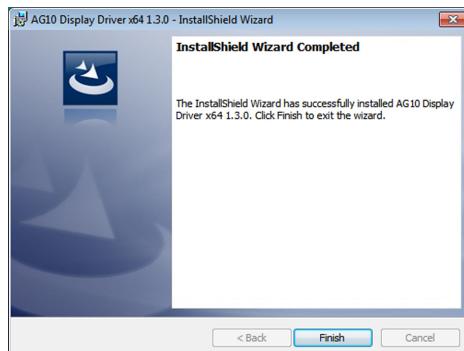
4. Click Continue.



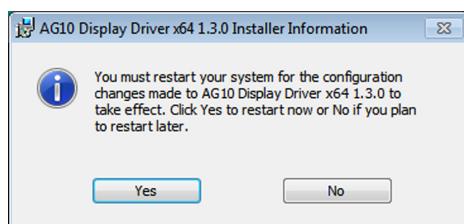
5. Click Install.



6. You have successfully installed the driver. Click Finish.



7. Restart the system for the configuration changes to take effect. Click Yes to restart or No to restart later.



Windows XP

To install the driver, click "AXELL Graphics Drivers" on the main menu.

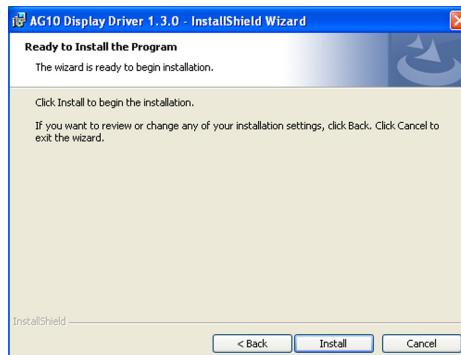
1. Select the language to use for the installation and then click OK.



2. The installation program is ready to install the graphics driver. Click Next.



3. Click Install to begin the installation.



4. A warning message will appear. Click Continue Anyway.



5. The screen will show the name of the software you are installing. Click Continue Anyway.



6. You have successfully installed the driver. Click Finish.



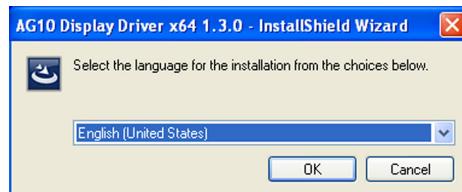
7. Restart the system for the configuration changes to take effect. Click Yes to restart or No to restart later.



Windows XP x64

To install the driver, click "AXELL Graphics Drivers" on the main menu.

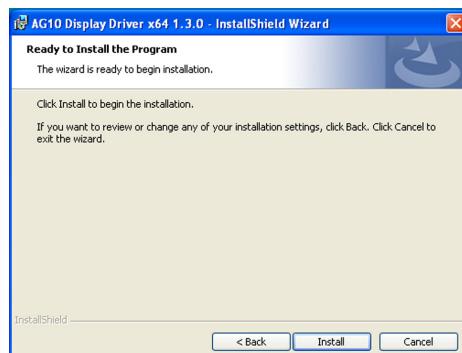
1. Select the language to use for the installation and then click OK.



2. The installation program is ready to install the graphics driver. Click Next.



3. Click Install to begin the installation.



4. A warning message will appear. Click Continue Anyway.



5. You have successfully installed the driver. Click Finish.

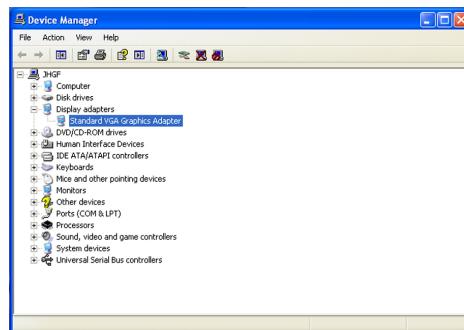


6. Restart the system for the configuration changes to take effect. Click Yes to restart or No to restart later.



7. Click Start and then click Control Panel. Double-click System. On the Hardware tab, click Device Manager.

Double-click Display Adapters. Right-click Standard VGA Graphics Adapter, and then click Properties.



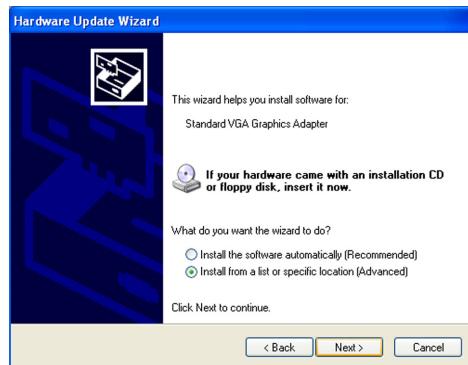
8. On the Driver tab, click Update Driver and then click OK.



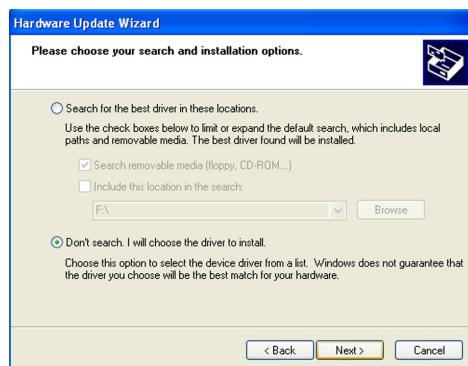
9. Click "No, not this time" and then click Next.



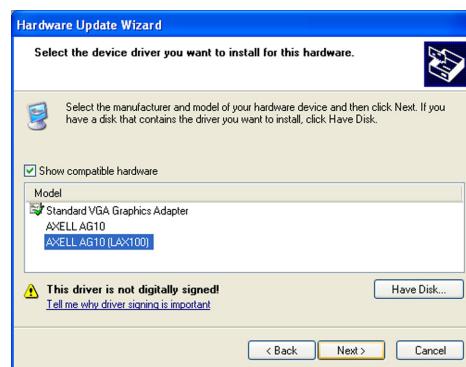
10. Click "Install from a list or specific location (Advanced)" and then click Next.



11. Click "Don't search, I will choose the driver to install" and then click Next.



12. Select the driver and then click Next.



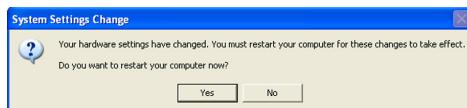
13. A warning message will appear. Click Continue Anyway.



14. Click Finish.



15. Restart the system for the configuration changes to take effect. Click Yes to restart or No to restart later.

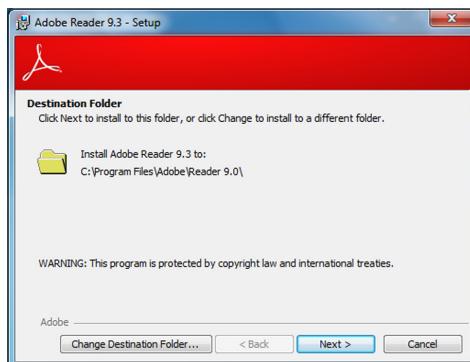


Adobe Acrobat Reader 9.3

Windows 7 / Windows Vista

To install the reader, click “Adobe Acrobat Reader 9.3” on the main menu.

1. Click Next to install or click Change Destination Folder to select another folder.



2. Click Install to begin installation.



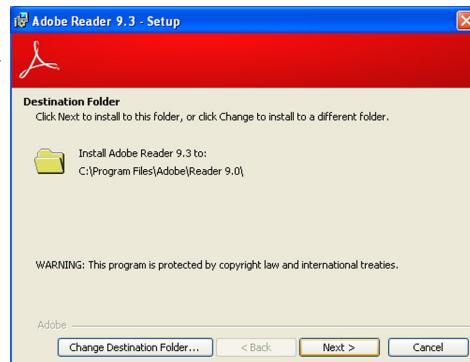
3. Click Finish to exit installation.



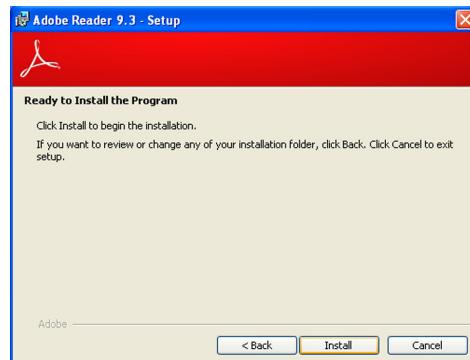
Windows XP

To install the reader, click "Adobe Acrobat Reader 9.3" on the main menu.

1. Click Next to install to the destination folder or click Change Destination folder to select another folder.



2. Click Install to begin installation.



3. Click Finish to exit installation.

